

each side, whereas the whole head is smooth and globose in *P. elegans*.

Elaunon erythrocephalus, Oliv.

Abo: Simbareni (*Bucch.*), 2 ♂, 2 ♀.

These are the original specimens of *Chelisoches pulchellus* of Gerstæcker, which must consequently be sunk as a synonym.

Doru lineare, Esch.

Bahia (*Fruhstorfer*), 1 ♂; Guatemala, 2 ♂, 1 ♀; Theresopolis (*Fruhstorfer*).

Var. *californica*, Dohrn.

Theresopolis (*Fruhstorfer*), 3 ♂, 1 ♀.

As the synonymic results established in the foregoing paper are rather important, it is worth while repeating them:—

Brachylabis cincticollis, Gerst., in Mt. Ver. Vorpomm. xiv. p. 44 (1883), is a true *Psalis*; it is allied to *Psalis pincina* of Kirby, and may prove to be identical when the male is discovered.

Forficula protensa, Gerst. (*l. c.* p. 45), is synonymous with *Spongiphora quadrimaculata*, Stål.

Forficula pæderina, Gerst. (*l. c.* p. 46), is identical with *Chatospania bongiana*, Borg, and *Ch. escaleræ*, Burr, so that the correct name is *Chatospania pæderina* (Gerst.).

Chelisoches pulchellus, Gerst. (*l. c.* p. 42), is synonymous with *Elaunon erythrocephalus* (Oliv.).

Apterygida lingua, Burr (*Termes. Füz.* xxv. p. 486, pl. xx. fig. 8, 1902), is the female of *Proreus elegans*, Borm.

XXXI.—*On Mammals collected in Turkestan by Mr. Douglas Carruthers.* By OLDFIELD THOMAS.

THE British Museum has recently received a collection of mammals, obtained in different parts of Turkestan by Mr. Douglas Carruthers, one of the mammal collectors to whom the remarkable success of the recent Ruwenzori Expedition was due.

Mr. Carruthers spent the winter of 1907-8 at Samarkand and Bokhara, making collections in the three zones accessible from there—the desert, fertile, and mountain regions of Turkestan. Then in the summer he made an excursion up to the Hissar Mountains, on the south side of the Zarafshan Valley, 100 miles east of Samarkand, and afterwards to the Ak-sai Plateau, N. of Kashgar.

Although the region is fairly well known to Russian naturalists, the British Museum has hitherto been very badly off for mammals from Turkestan; and this series is therefore of much importance to us for comparison with our growing collections of Persian and N. Indian animals.

120 specimens are enumerated, belonging to 23 species, of which four have needed description as new, besides three others from adjacent parts of Central Asia, already in the Museum Collection.

1. *Nyctalus noctula*, Schr.

♂. 76, 77, 78, 79; ♀. 74, 75. Samarkand. 2000'.

2. *Pipistrellus pipistrellus lacteus*, Temm.

♂. 2, 3, 25; ♀. 1. Samarkand. 2000'.

In describing his *Pipistrellus bactrianus** Dr. Satunin has not shown any reason why Dobson's definite identification † of Temminck's *lacteus* with the pale-coloured E. Turkestan Pipistrelle should be ignored. Without evidence that the identification is wrong, the name should be used.

Moreover, Severtzoff's *Vesperugo akokomuli*, Temm., var. *almatensis* ‡, dating from 1876, would also appear to be the same form.

3. *Erinaceus macracanthus*, Blanf.

♀. 24. Hills south of Samarkand. 3000'.

4. *Crocidura* sp.

♂. 11, 12, 22; ♀. 19, 21. Hills south of Samarkand. 3000'.

♂. 81; ♀. 100. Samarkand. 2000'.

Allied to or identical with *C. ilensis*, Mill.

* Mitth. Kaukas. Mus. ii. p. 85 (1905).

† Cat. Chir. B. M. p. 225 (1878).

‡ Ann. & Mag. Nat. Hist. (4) xviii. p. 42 (1876).

5. *Citellus fulvus*, Eversm.

♂. 41; ♀. 40, 65. 50 miles S.W. of Bokhara. 600'.

♂. 87; ♀. 86, 97. Samarkand. 2000'.

Both summer and winter pelages are represented in this series, but there is not the material difference between the two that occurs in the next species.

6. *Spermophilopsis leptodactylus*, Licht.

♂. 30, 92, 94; ♀. 55, 60, 63, 64. 50 miles S.W. of Bokhara. 600'.

Nos. 92 and 94, killed 20th May, are in the curious short summer pelage, though with a few hairs left of the soft winter coat.

“Shot on sand-hills.”—*D. C.*

[*Arctomys littledalei*, sp. n.]

The orange-rufous marmot of the Pamirs, hitherto erroneously termed *A. caudatus*, Jacq. Description in footnote*.]

7. *Arctomys littledalei flavinus*, subsp. n.

♂. 117; ♀. 118. Hissar Mts., 100 miles E. of Samarkand. 10,000'.

General characters of *A. littledalei*, but the body-colour paler throughout, more yellowish, the hairs brown at base,

* Allied to *A. caudatus*, but the back, instead of being broadly washed with black, wholly tawny or ochraceous tawny—the hairs blackish at base, their middle zone buffy or ochraceous buff, and their ends tawny, with minute and inconspicuous black tips. Under surface duller tawny. Cheeks and sides of neck little lighter than rest of body. Crown blackish, as is also a patch on the top of the nose. Hands and feet ochraceous tawny. Tail long, dull ochraceous tawny, with a prominent black end.

Skull decidedly smaller than that of the true *A. caudatus*.

Dimensions of the type (measured in skin);—

Head and body (probably stretched) 580 mm.; tail 240; hind foot 80. Skull: upper length 95; basilar length 83; greatest breadth 61; nasals 37.5 × 17.3; length of upper tooth-series 22.

Hab. Alai Mts., Pamir.

Type. Old female. B.M. no. 92. 1. 1. 7.

The British Museum owes to Mr. St. George Littledale its first specimens of this splendid marmot, and has since received others from the St. Petersburg and Warsaw Museums. These have been hitherto considered as identical with *A. caudatus*, Jacq., but the skins of this latter received from Col. Ward and Mr. Whitehead show such constancy in their larger size and possession of a broadly black-washed back that it is evident that the Pamir species should be distinguished from them, and I have had much pleasure in naming it in honour of the well-known explorer who discovered it.

cream-buff for their middle zone, their ends tawny, without black tips. Under surface between buffy and ochraceous buff. Sides of neck and area round and over shoulders clear buffy, without tawny tips, this contrasting with the top of the neck, which is darkened by the tawny ends of the hairs. Head brown, becoming gradually tawny posteriorly. Hands and feet buff. Tail dull buffy or pinkish buff, the end scarcely darker.

Skull about as in true *A. littledalei*.

Dimensions of the type (measured in the flesh):—

Head and body 470 mm.; tail 220; hind foot 82; ear 28.

Skull: upper length 95; basilar length 84; greatest breadth 57; length of nasals 39; length of upper tooth-row 21.

Hab. as above.

Type. Adult female. Original number 118. Collected 20th June, 1908.

This is probably the marmot called *A. caudatus* by Severtzoff. It has, of course, nothing to do with that species, from which it is even further away than *A. littledalei*, of which I provisionally make it a subspecies. It is readily distinguished from the latter by its paler ground-colour, the prominent pale areas on the sides of the neck, and by the absence of a black tip to the tail.

An imperfect skin from Suok, N.W. Mongolia, presented to the Museum by Mr. H. J. Elwes, would also appear to be referable to this form.

8. *Arctomys centralis*, sp. n.

Arctomys dichrous, Büchner, nec Anderson.

♂. 121 (immature). Ak-sai Plateau, 120 miles N. of Kashgar. 12,000'.

A small species of a colour intermediate between the brown marmots of the *himalayanus* group and the yellow ones of the *caudatus-littledalei* type. Fur of back for its basal two-fifths blackish brown, then two-fifths cream-buff, the terminal fifth dark brown. Belly strongly contrasted dark rufous.

Dimensions of the type (measured in skin):—

Head and body (stretched) 600 mm.; tail 155.

Skull: upper length 95; condylo-basal length 96; greatest breadth 62.5; nasals 41 × 16.3; palatilar length 50; length of upper tooth-series 24.

Hab. Tian-shan. Type from Mt. Boro-choro.

Type. Old male. B.M. no. 92. 1. 1. 5. Collected 15th

July, 1889. Received in exchange from the St. Petersburg Museum.

The small red-bellied marmot of the Tian-shan was identified by Dr. Büchner as *A. dichrous*, Anderson; but a cotype of this latter in the British Museum shows that it is a wholly different animal, of a more or less chocolate-brown colour. Dr. Büchner has so fully described the present species and stated its relationship to the other Siberian forms that further detail is not now required.

It may be noted that *A. baibacinus*, Brandt, is absolutely a *nomen nudum*, whether Dr. Büchner was or was not right in separating the present animal from it.

9. *Rhombomys opimus*, Licht.

♂. 34, 54, 61; ♀. 56, 57, 59, 62, 88, 93. 50 miles S.W. of Bokhara. 600'.

10. *Meriones tamaricinus*, Pall.

♂. 5, 98, 99; ♀. 4, 95. Samarkand. 2000'.

11. *Meriones evermanni*, Bogd.

♂. 23, 67, 84, 85; ♀. 7, 68, 71. 10-20 miles S. of Samarkand. 2000'.

"In small colonies on semi-cultivated desert."

I provisionally use the name *evermanni* for this gerbil as being undoubtedly applicable to it, but it is so closely related to the Kandahar *M. erythrorus*, Gray, that its ultimate union with that species is very probable.

Gerbils of the same type are widely distributed over S.W. Asia, examples from Karyatein (Kargeten), near Damascus, being quite similar to typical Afghan specimens. Sundevall's *M. crassus* from Sinai also belongs here.

A smaller species, *M. longifrons*, Lat., occurs in S.W. Persia (Ahwaz, Busrah, &c.) and Arabia (Jedda).

12. *Meriones meridianus*, Pall.

♂. 43, 44, 45, 46, 51, 52; ♀. 48, 49, 50. 50 miles S.W. of Bokhara. 600'.

Büchner has placed Blandford's *cryptorhinus* as a synonym of *meridianus*, but specimens of it in the British Museum indicate that, while undoubtedly closely allied, it may be distinguished by its larger size.

The species described in the footnote * was also considered by Büchner as *M. meridianus*.

13. *Mus rattus*, L.

♂. 20. Hills south of Samarkand. 4000'.

14. *Mus wagneri*, Eversm.

♂. 15, 36, 83, 96; ♀. 6, 8, 10, 13, 14, 17, 18. Samarkand and southwards. 2000-3000'.

♂. 47, 89, 90, 91; ♀. 31, 32, 33, 42-58. 30-50 miles S.W. of Bokhara. 600'.

15. *Apodemus sylvaticus arianus*, Blanf.

♂. 9; ♀. 16. Hills south of Samarkand. 3000'.

♂. 101. Samarkand. 2000'.

♂. 103, 104, 111-115. Hissar Mts., 100 miles E. of Samarkand.

16. *Cricetulus phœus*, Pall.

♂. 112. Hissar Mts., 100 miles E. of Samarkand. 9500'.

* *Meriones büchneri*, sp. n.

Allied to *M. meridianus*, but with much shorter ears. General colour "clay-colour," but bright and glossy, instead of dull as in Ridgway, darker and richer than the sandy colour of *M. meridianus*. Under surface pure white to the roots of the hairs. Ears very short, 11 mm. instead of 15 measured from their bases and 6.7 mm. instead of 9 measured dry from the crown, their proectote bright buffy with white end. Hands and feet white; soles of the latter wholly hairy except a small spot under the calcaneum; claws white. Tail uniformly tawny ochraceous above and below, a few of the terminal hairs tipped with black.

Skull apparently quite as in *M. meridianus*, except that the bullæ are rather smaller.

Dimensions of the type:—

Head and body (in skin) 118 mm.; tail (skin) 89; hind foot (wet) 27; ear (wet) 11.

Skull: greatest length 32.2; breadth on auditory bullæ 18.

Hab. Deleun Mts., Dsungaria.

Type. Adult male. B.M. no. 92. 1.1.11. Collected by N. Przevalski, October 1874, and received in exchange from the St. Petersburg Museum.

This gerbil was referred to *M. meridianus* by Büchner, but he cannot have noticed the striking difference in the size of the ears. From "*Gerbillus*" *kozlovi*, Satunin, it differs by its white claws and untufted tail.

17. *Microtus (Micr.) ravidulus*, Mill.

♂. 123, 124; ♀. 120, 122. Ak-sai Plateau, 120 miles N.E. of Kashgar. 11,000'.

Practically topotypical of Miller's species, which was described from Ok-chi, in the valley of the Ak-sai River, at 7500'.

18. *Microtus (Pitymys) carruthersi*, sp. n.

♂. 105, 108, 109, 110; ♀. 106, 107, 116. Hissar Mts., 100 miles E. of Samarkand. 9000-10,000'.

Apparently allied to the European subgenus *Pitymys*, but with mammæ and some dental resemblances to *Phaiomys*.

Size rather large for a *Pitymys*. Fur long, very soft and fine; hairs of back about 12 mm. in length. General colour above near "broccoli-brown," but varying a good deal in the different specimens. Under surface dull whitish, the slaty bases of the hairs showing through. Ears fairly long, quite evident beyond the fur, pale brown. Hands and feet dull whitish above; claws rather longer than in ordinary *Pitymys*, but not so long as in *Phaiomys*; soles apparently with only five pads, their posterior part thickly hairy. Tail fairly long, more than twice the length of the hind foot, well but not heavily haired, brown along its middle line above and at the end, dull whitish on sides and below. Mammæ 2-2=8.

Skull lightly built, low, smooth, rounded, not ridged, its general shape not very unlike that of *M. (P.) majori*, but the brain-case is shorter and the face more developed. Nasals very broad anteriorly, tapering behind. Palatal foramina, posterior palatal region, and bullæ all about as in that species.

Tooth-pattern quite as in *Phaiomys*, as figured by Miller*, m^3 being similarly bilaterally symmetrical, though the middle section is even less constricted in the middle line. Below the anterior molar is quite like Miller's figure, except that there is usually a small extra external angle at the middle of the long anterior lobe, making five salient external angles to the tooth.

Dimensions of the type (measured in the flesh):—

Head and body 101 mm.; tail 39; hind foot 16; ear 13.

Skull: greatest length 24.5; basilar length 22; zygomatic breadth 14; nasals 6.1 × 3.6; interorbital breadth 3.7; palatilar length 13.5; diastema 8.3; palatal foramina 4.6; upper molar series (crowns) 5.7.

Hab. as above.

* N. Am. Faun. no. 12, p. 57 (1896).

Type. Adult male. Original number 108. Collected 14th June, 1908.

I have been much puzzled as to where this peculiar little vole should be placed. It differs from all the members of *Pitymys* by its more numerous mammæ, and in this respect, as in locality and the details of the molar pattern, it shows affinity with *Phaiomys*. But there is nothing very essential in the difference of molar pattern, while the general shape of the skull, the external proportions, and the moderate claws are all so much more like *Pitymys* than *Phaiomys*, that I provisionally place it with the former, in which it is geographically a connecting-link between the European and American members.

19. *Microtus (Alticola) argurus*, sp. n.

♀. 102. Hissar Mts., 100 miles E. of Samarkand. 9500'. 14th June, 1908. *Type.*

A pale species, with an unusually long white tail.

Size about as in *M. blanfordi*, the only other long-tailed species. Fur fine and soft; hairs of back (in summer pelage) about 7-8 mm. in length. General colour above "ecrudrab"; under surface white, the slaty bases of the hairs showing through; a line of cream-buff marking the junction of the upper and lower colours on the sides. Hands and feet white. Tail unusually long, slender, thinly haired (in summer), lightly pencilled, wholly white above and below. Mammæ 2-2=8.

Skull not unlike that of *M. (A.) worthingtoni*, Miller, allowing for the fact that the type is barely adult. Bullæ rather smaller.

Teeth of the typical *Alticola* structure, but not very highly specialized, as the posterior lobe of m^3 is not so long as it often is, and is also, with the rest of the teeth, thicker, its thinness being a characteristic of the most specialized forms of *Alticola*. Pattern about as in *M. blanfordi* *.

Dimensions of the type (barely adult):—

Head and body 93 mm.; tail 50; hind foot 19; ear 15.5.

Skull: greatest length 25.4; nasals 7.2; interorbital breadth 3.9; palatilar length 12; diastema 7.4; palatal foramina 4.6; upper molar series (crowns) 5.2.

Hab. and *type* as above.

This striking vole is readily distinguishable by its very long tail from all the species of *Alticola* except *M. blanfordi*, which approaches it in tail-length but is very much darker

* Figured by Blanford, J. A. S. B. I. pt. 2, pl. i. (1881).

coloured, and whose tail has a dark line along the upper surface.

The present is the most western locality at which any true *Alticola* has been found, but there is little doubt that *Chionomys*, the subgenus recently founded to contain the *Microtus nivalis* group, is the nearly allied European representative of *Alticola*.

20. *Ellobius fusciceps*, sp. n.

♂. 69, 70, 72, 80; ♀. 66, 73, 82. Samarkand. 2000'.

Black of face extended on crown. Skull short and broad. m^3 complicated.

Size, as gauged by skull, scarcely larger than in *E. talpinus*. General colour above buffy, rather darker and more intense than "pinkish buff," passing gradually through dull buffy on the sides to soiled buffy whitish on the belly, the last lighter than in true *talpinus*, darker than in *rufescens*. Face blackish, the black extending further back than in other species and not entirely giving place to the dorsal colour till behind the level of the ears.

Skull comparatively short and broad, zygomata evenly and widely expanded. Muzzle short and broad, the incisors rather less projected forwards than usual, their tips about 2 mm. nearer the molars than in other specimens of the same size. Nasals not markedly narrowed behind, their posterior end just level with that of the frontal premaxillary processes. Brain-case smooth and little ridged, even in specimens with the teeth quite worn down. Lambdoidal ridges well marked, nearly evenly transverse, but slightly bowed forwards in the middle third and very much as they are in *E. tancrei*, quite different to the condition in *E. fuscicapillus*, *intermedius*, *lutescens*, and *woosnami*.

Third upper molar complex, about as in nos. 9-10 of Büchner's plate, therefore very different from the simple tooth of *E. talpinus* and *rufescens*.

Dimensions of the type (an old male), taken in the flesh:—

Head and body 106 mm.; tail 13; hind foot 21.

Skull: condylo-basal length 31; condyle to tip of incisors 32.8; zygomatic breadth 22.3; nasals 8×3.4 ; inter-orbital breadth 5.4; palatal length 18; diastema 11; palatal foramina 3.2; upper molar series 7.3.

Hab. Samarkand.

Type. Old male. Original number 80. Collected 20th April, 1908.

Externally this *Ellobius* differs from any of the other

described forms by the greater extension backwards of the dark colour of the crown.

In the skull *E. talpinus* and *rufescens* are smaller, with much simpler m^3 ; *E. tancrei* is larger, with longer muzzle and more forwardly projected incisors, as are also, with differently shaped lambdoidal ridges, *E. fuscocapillus*, *intermedius*, *lutescens*, and *woosnami*.

21. *Lepus* sp.

♂. 27, 29, 35; ♀. 26, 28, 38, 39, 53. 30 to 50 miles W. of Bokhara. 600'.

22. *Lepus* sp.

♂. 113; ♀. 114. Hissar Mts., 100 miles E. of Samarkand.

In face of the considerable number of names that have been given to Central-Asian hares, I cannot at present determine definitely the two species obtained by Mr. Carruthers. One of them is no doubt *L. lehmanni*, Sev.

23. *Ochotona rutila*, Sev.

♂. 119. Hissar Mts., 100 miles E. of Samarkand. 9500'.
"Shot among rocks; not at all shy; was carrying a large amount of grass."—D. C.

XXXII.—*Two new Bats from the Solomon Islands.*

By KNUD ANDERSEN.

Pteralopex anceps, sp. n.

Diagnosis.—Dentition less specialized than in *Pt. atrata* (Guadalcanar, E. Solomon Islands); fur much longer; underside of body conspicuously paler. *Hab.* Bougainville, W. Solomon Islands.

p^4 .—More Pteropine in shape and structure than corresponding tooth of *Pt. atrata*. In *Pt. anceps* p^4 is one-fifth longer than broad (actual measurements, antero-posterior diameter of crown 5.8 mm., transverse diameter 4.8); the anterior basal ledge is narrow, not extending on the inner side of the tooth round the base of the inner main cusp; the posterior basal ledge less heavy, particularly postero-internally, and not